

WHAT IS CLAIMED IS:

1. A method for modeling a configuration corresponding to a network device, wherein the configuration includes a plurality of configuration commands, the method comprising:
 - determining a characteristic of the network device;
 - retrieving at least a representation of a configuration schema, the at least a representation of a configuration schema corresponding to the determined characteristic of the network device;
 - retrieving a first of the plurality of configuration commands from the network device configuration corresponding to the network device; and
 - generating an XML object corresponding to the retrieved configuration command; wherein the XML object is generated according to at least a portion of the retrieved at least the representation of the configuration schema.
2. The method of claim 1, wherein determining the characteristic of the network device comprises:
 - determining one of a network device manufacturer, network device model, and network device operating system version.
3. The method of claim 1, wherein the at least the representation of the configuration schema comprises a plurality of schema portions and wherein retrieving the at least the representation of the configuration schema comprises:

retrieving an intermediate representation of the configuration schema, wherein the intermediate representation comprises a plurality of keys;

wherein each of the plurality of keys is associated with a corresponding one of the plurality of schema portions.

4. The method of claim 3, wherein retrieving the intermediate representation of the configuration schema comprises:

retrieving a hash table.

5. The method of claim 3, further comprising:

generating a look-up key for the retrieved configuration command.

6. The method of claim 5, further comprising:

identifying a first of the plurality of keys in the intermediate representation, the first of the plurality of keys corresponding to the generated look-up key; and

retrieving a first of the plurality of schema portions, the first of the plurality of schema portions corresponding to the first of the plurality of keys;

wherein the XML object is generated according to the first of the plurality of schema portions.

7. The method of claim 1, further comprising:

converting the XML object to an XML document.

8. The method of claim 7, further comprising:
converting the XML document into a document object model (DOM).

9. The method of claim 8, further comprising:
verifying the DOM against the at least the representation of the configuration schema.

10. A system for modeling a native-format network device configuration, the system comprising:

- an intermediate schema representation system (ISR);
- an XML converter connected to the ISR, the XML converter configured to convert the native-format network device configuration into an XML document; and
- a document object model (DOM) transformer connected to the XML converter, the DOM transformer configured to transform the XML document into a DOM.

11. The system of claim 10, wherein the native-format network device configuration is associated with a router.

12. The system of claim 10, wherein the native-format network device configuration is associated with a data storage system.

13. The system of claim 10, wherein the native-format network device configuration is associated with an optical component.

14. The system of claim 10, further comprising:

- a DOM storage device for storing the DOM.

15. The system of claim 14, wherein the DOM storage device comprises temporary storage.

16. The system of claim 14, further comprising:
an XML-to-XML converter connected to the DOM storage device.
17. The system of claim 14, further comprising:
an XML-to-CLI converter connected to the DOM storage device.
18. The system of claim 14, further comprising:
a graphical user interface connected to the DOM storage device.

2020 RELEASE UNDER E.O. 14176

19. A system for modeling a network device configuration, the system comprising:
 - a plurality of network devices;
 - a DOM generator connected to the plurality of network devices;
 - a configuration schema storage device connected to the DOM generator; and
 - a DOM storage device connected to the DOM generator.
20. The system of claim 19, further comprising:
 - a DOM application connected to the DOM generator.
21. The system of claim 19, wherein the configuration schema storage device comprises:
 - an intermediate schema representation storage device.
22. The system of claim 19, further comprising:
 - an XML-to-XML converter connected to the DOM generator.
23. The system of claim 19, further comprising:
 - an XML-to-CLI converter connected to the DOM generator.

24. A method for modeling a configuration corresponding to a network device, wherein the configuration includes a plurality of configuration commands, the method comprising:

 determining a characteristic of the network device;

 retrieving at least a representation of a configuration schema, the at least a representation of a configuration schema corresponding to the determined characteristic of the network device;

 retrieving a first of the plurality of configuration commands from the network device configuration corresponding to the network device; and

 generating a standard-format representation of the retrieved configuration command;

 wherein the standard-format representation is generated according to at least a portion of the retrieved at least a representation of the configuration schema.

25. The method of claim 24, wherein the at least the representation of the configuration schema comprises a plurality of schema portions and wherein retrieving the at least the representation of the configuration schema comprises:

 retrieving an intermediate representation of the configuration schema, wherein the intermediate representation comprises a plurality of keys;

 wherein each of the plurality of keys is associated with a corresponding one of the plurality of schema portions.

26. The method of claim 25, further comprising:
generating a look-up key for the retrieved configuration command.

27. The method of claim 26, further comprising:
identifying a first of the plurality of keys in the intermediate representation, the
first of the plurality of keys corresponding to the generated look-up key; and
retrieving a first of the plurality of schema portions, the first of the plurality of
schema portions corresponding to the first of the plurality of keys;
wherein the standard-format representation is generated according to the first of
the plurality of schema portions.

28. The method of claim 24, wherein the standard-format representation comprises an
XML object.

29. A system for modeling a configuration corresponding to a network device, wherein the configuration includes a plurality of configuration commands, the system comprising:

- a processor;
- a storage device connected to the processor; and
- a plurality of instructions stored on the storage device, the plurality of instructions configured to cause the processor to:

- determine a characteristic of the network device;
 - retrieve at least a representation of a configuration schema, the at least a representation of a configuration schema corresponding to the determined characteristic of the network device;
 - retrieve a first of the plurality of configuration commands from the network device configuration corresponding to the network device; and
 - generate a standard-format representation of the retrieved configuration command;
- wherein the standard-format representation is generated according to at least a portion of the retrieved at least the representation of the configuration schema.

30. The system of claim 29, wherein the at least the representation of the configuration schema comprises a plurality of schema portions and wherein the plurality of instructions cause the processor to retrieve the at least the representation of the configuration schema by:

retrieving an intermediate representation of the configuration schema, wherein the intermediate representation comprises a plurality of keys;

wherein each of the plurality of keys is associated with a corresponding one of the plurality of schema portions.

31. The system of claim 29, wherein the plurality of instructions are further configured to cause the processor to:

generate a look-up key for the retrieved configuration command.

32. The system of claim 31, wherein the plurality of instructions are further configured to cause the processor to:

identify a first of the plurality of keys in the intermediate representation, the first of the plurality of keys corresponding to the generated look-up key; and
retrieve a first of the plurality of schema portions, the first of the plurality of schema portions corresponding to the first of the plurality of keys;

wherein the standard-format representation is generated according to the first of the plurality of schema portions.

33. The system of claim 29, wherein the standard-format representation comprises an XML object.

34. The system of claim 31, wherein the plurality of instructions are further configured to cause the processor to:

convert the XML object to an XML document.

35. The system of claim 34, wherein the plurality of instructions are further configured to cause the processor to:

convert the XML document into a document object model (DOM).

36. The system of claim 35, wherein the plurality of instructions are further configured to cause the processor to:

verify the DOM against the at least the representation of the configuration schema.